

MV-22 Osprey: More than Marine Air's Medium-lift replacement.

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Introduction

Change is in the air regarding the Marine Corps medium- lift assault support platform. The aging fleet of CH-46E "Sea Knight" helicopters is in the process of being replaced by the MV-22 "Osprey," a tilt-rotor aircraft capable of flying in both helicopter and airplane configurations. The increased abilities this new airframe brings to the Marine air-ground task force (MAGTF) drastically changes the range and flight time limitations of its predecessor, requiring assault support planners and tacticians to rethink the tactical employment of the medium-lift assault support platform. New tactics, techniques, and procedures must be developed to address the enhanced range and airspeed capabilities of the MV-22 as the new centerpiece of MAGTF assault support aviation operations. Consideration must be given to filling the ability gap in both rotary-wing and fixed-wing escorts to provide adequate enroute defensive support and to address the addition of new mission tasks that would maximize the MV-22 Osprey's enhanced operational capabilities.

The Changing Role of the Escort

The MV-22 has the ability to be more than just a replacement for the Marine Corps medium lift assault

support platform. The conversion mode allows the MV-22 to operate at airspeeds and altitudes that its predecessor, the CH-46E helicopter, was performance-limited in achieving. When converting from helicopter-mode to tilt-rotor mode, the MV-22 is able of rapidly accelerating to airspeeds in excess of 250 nautical miles per hour (Kts).¹ Operating at these speeds allow the aircraft to not only build horizontal speed, but also to climb in altitude, creating separation from the threat envelopes of many surface-to-air weapons systems.

In fact, the MV-22 is capable of climbing well above the service ceiling of the CH-46E with the only limiting factor being its payload: if carrying troops, the MV-22 must remain below 13,000 feet mean sea level (MSL) to avoid depleting oxygen levels.² Tactically, the ability to rapidly build altitude at great airspeeds presents an obvious advantage by reducing time spent within threat envelopes and by shortening transit times between destinations.

However, concerns regarding the ability of current USMC inventory aircraft to act as armed escorts, in the attached and detached role, to assault support packages

¹ Boeing Integrated Defense Systems. V-22 Osprey Backgrounder.
http://www.boeing.com/rotorcraft/military/v22/docs/V-22_overview.pdf.

² Boeing. V-22 Osprey Backgrounder.

consisting solely of Osprey aircraft. AH-1W "Cobra" attack helicopters have long played the role of the attached escort while fixed-wing aircraft have provided detached escort. However, airspeed variations between the MV-22 Osprey and the CH-46E Sea Knight may change the way escorts operate in the future of Marine aviation.

Rotary-Wing Escort

The AH-1W "Cobra" attack helicopter is the predominant choice for rotary-wing escort in Marine Corps aviation operations. While the UH-1N "Huey" utility helicopter is used as an escort in a limited capacity, the AH-1W is the airframe of choice because of its speed and firepower.

In the attached escort role, AH-1W escort flights affix themselves to assault packages to provide cover and observation during flight operations in hostile environs. The AH-1W can also serve in the detached escort role when the situation calls for the escort flight to move along a route in advance of the assault package.³ The AH-1W will match airspeeds and fly along a route with its elements "welded" to the assault package, keeping close formation on

³ Air NTTP 3-22.5-RWTACSOP TACTICAL POCKET GUIDE USMC Rotary Wing Tactical Standard Operating Procedures, November 2006.

the flight so that it can protect the assault aircraft from hostile attacks along the route of flight.⁴

Never the less, because the MV-22 operates beyond the maximum airspeed of the AH-1W, the Cobra will not be capable of providing attached escort to MV-22 assault packages. This leaves detached escort as the only option available to a tilt-rotor/rotary-wing mission package, which leaves the MV-22 open to possible attacks during its transit to and from objective areas. Detached escort presents a critical vulnerability to the MV-22 because currently the Osprey lacks self-defense capability with the exception of a single ramp-mounted M240G medium machine gun.⁵

Critics of this argument believe that coupling detached escorts in advance of an assault flight operating with shorter flight times at higher altitudes should provide sufficient protection. Rotary wing escorts clearing a flight route in advance of an Osprey package does provide an advance clearing sweep, but does not make up for the immediate responsiveness to threats provided by

⁴ How to Plan a Helicopterborne Assault: A Guide for MAGTF Leaders. Tactical Training and Exercise Control Group. Twentynine Palms, California. Marine Aviation Weapons and Tactics Squadron – 1. Yuma, Arizona. 26 June 2002.

⁵ Maj Christopher Donnelly, USMC. Interview by Capt Richard Barbon, USMC. *Assessment Objectives: the primary focus of this interview is to discuss operations conducted in Iraq in support of OIF 08.1.* Al Asad, Iraq. 6 November 2008.

attached escorts, creating a capability gap and a vulnerability for the Osprey.

Currently, a defensive weapon system in development by BAE Systems called the *Remote Guardian System* (RGS). The RGS could greatly enhance the survivability of the MV-22 and possibly provide some level of defensive firepower that is lacking due to the inability of rotary-wing assets to provide the Osprey with attached escort.

The RGS would provide the Osprey with "360 degrees of suppressive firepower" with a belly-mounted .30 caliber mini-gun controlled by the crew chief via remote control and optical suite that would display near the crew station in the aircraft.⁶ This would allow enlisted aircrew to scan for threats while reducing pilot workloads, allowing pilots to focus on aviating and navigating the aircraft along flight routes. Coupling the MV-22 with such a weapon system could provide a higher degree of protection to the Osprey during tactical operations in which the only escorts available would be detached rotary-wing.

⁶ BAE Systems Electronics & Integrated Solutions. Remote Guardian System. http://www.baesystems.com/BAEProd/groups/public/documents/bae_publication/bae_pdf_eis_remote_guardian.pdf.

Fixed-Wing Escorts

The role of fixed-wing aircraft as escorts to the MV-22 to date has been utilized with several thousand feet separation between the flight elements.⁷ Fixed-wing aircraft operating at altitudes above 15,000 feet MSL can provide over-watch along flight routing and are capable of responding to ground threats but are less likely to acquire threats before the assault flight becomes engaged. Marine Air Weapons and Tactics Squadron One (MAWTS-1) is currently developing scenarios utilizing fixed-wing escorts both at high-altitude and with several thousand feet separation in order to analyze and further develop tactics, techniques, and standard operating procedures for use in future aviation operations involving the MV-22.⁸

Within the composite squadron of a Marine expeditionary unit (MEU), the AV-8B Harrier attack jet aircraft is commonly used as fixed-wing escort for assault packages, employed in a detached mode to precede the assault package along the route of flight.⁹ With the Osprey beginning to deploy as a part of a MEU composite squadron, tactics for employing the Harrier and Osprey in concert

⁷ Capt David J. Bennett. E-mail message to author. 12 December, 2008.

⁸ Capt David J. Bennett e-mail.

⁹ Air NTTP 3-22.5-RWTACSOP.

must be tested and developed along these lines.¹⁰

Development of these tactics, techniques, and procedures must ensure that assault support aircraft are protected and enabled to function in support of MAGTF operations.

Expanding the Role of the MV-22

In order to maximize the capabilities of the MV-22, consideration should be given to expanding its role beyond the realm of medium lift assault support by adding several non-traditional missions that would provide the MAGTF commander with more options.

For example, the Osprey is capable of being configured to support certain key mission sets, and as a platform, has potential for future technological configuration suites and an expanded mission-essential task list. This is a viable consideration for the MV-22 because its payload capability greatly exceeds its predecessor by several thousands of pounds. Configuring the MV-22 as a command and control (C2) platform; a non-traditional intelligence, surveillance, and reconnaissance (ISR) platform; and as a Tactical Bulk Fuel Delivery System (TBFDS)-capable platform are mission sets for which the MV-22 is probably uniquely suited.

¹⁰ Capt David J. Bennett e-mail.

As a C2 platform, the MV-22 could be configured with additional radios capable of performing C2 for scalable aviation operations and could even "be configured with a Direct Air Support Center (Airborne) (DASC(A)) package" that would expand the Marine air command and control system (MACCS) operational capabilities within a MAGTF commander's area of operations.¹¹ The RGS onboard weapon and optics suite currently in test and evaluation would further increase these capabilities and broaden the range of information collecting and dissemination, making the Osprey an option for non-traditional ISR. The operating altitude ceiling of the Osprey would also allow it to remain above most hostile surface to air weapons engagement range¹² while providing the MAGTF commander with an overhead view of the battlefield, and providing a radio relay capability between commanders, subordinates and coordinating units.

The on-station time of the Osprey will further this capability because of its ability to remain airborne longer than the current MEU air C2 platform, the UH-1N utility helicopter.¹³ This capability would further enhance MAGTF aviation operations while allowing for greater flexibility

¹¹ Maj John Bullard. Executive Summary. MV-22 Osprey: Future Role and Impact for Medium Lift. Command and Staff College. 1997.

¹² JFIRE MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR THE JOINT APPLICATION OF FIREPOWER. FM 3-09.32. MCRP 3-16.6A. NTTP 3-09.2. AFTTP(I) 3-2.6. 20 December 2007.

¹³ Air NTTP 3-22.5-MV-22 TACTICAL POCKET GUIDE MV-22 OSPREY.

in stand-off altitudes and deconfliction of airspace. Altitude ceilings and on-station times are considerations that must be minutely planned for when considering these mission sets.

Additionally, the Osprey should be considered for TBFDS configuration. The requirement for aircraft to fuel quickly and often is offset on the battlefield by the capabilities provided by the KC-130 and the CH-53E in their abilities to refuel other aircraft. The CH-53E makes use of the TBFDS system, which consists of internal fuel bladders and is capable of providing a hasty ground refueling station usable by rotary-wing assault and escort aircraft. Consideration should be given to developing a similar capability for the MV-22 because of its ability to "carry up to 20,000 pounds internally" over 390 nautical miles at airspeeds greater than 250 Kts.¹⁴ A TBFDS-configured Osprey will further expand the battle space and provide further options for MAGTF commanders and their planners when developing plans that involve long range operations.

Alternatively, these views are refuted by some who believe adding non-standard mission sets to the Osprey

¹⁴Boeing Integrated Defense Systems. V-22 Osprey Backgrounder. http://www.boeing.com/rotorcraft/military/v22/docs/V-22_overview.pdf.

detract from its original conception as a medium-lift assault support platform; specifically ship to objective maneuver and tactical delivery of troops. But adding these capabilities and mission-sets only further enhances ship to objective maneuver and provides the MAGTF commander with options and tools to achieve tactical and strategic success on the battlefield.

Conclusion

The MV-22 Osprey brings new challenges and possibilities to Marine Corps aviation operations. Because of its unique capabilities, the Osprey has the possibility to develop into a versatile, utility-type role with an expanded mission-essential task list, rather than serving solely as the new medium lift assault support platform. However, the escort role must be addressed in order to better employ the Osprey as an assault support platform. It is up to assault support planners, weapons and tactics instructors (WTI's), and innovative aviators to further develop tactics, techniques, and procedures that will maximize the capabilities of this aircraft while fully integrating it into Marine Corps aviation operations.

1695 words

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